

VI. "Correction of Statement in the 'Note on the Electromotive Properties of Muscle,' read December 14, 1876." In a Letter to Prof. HUXLEY, by Dr. BURDON SANDERSON, F.R.S. Received June 14, 1877.

DEAR SIR,—In a short Note which I communicated to the Royal Society in December last I gave an account of certain observations relating to the electromotive phenomena of the uninjured gastrocnemius muscle of the frog. In commenting on these results I was led, I need not say unintentionally, to make a serious misstatement of the doctrine taught by Prof. du Bois-Reymond with reference to these phenomena. After comparing the electromotive properties of the muscle-cylinder derived from the gastrocnemius with those of the typical muscle-cylinder, as set forth in the "Law of the Muscle-current," I stated that the phenomena, as they actually present themselves, had not been correctly described. It is this statement that I desire to correct.

Shortly after the publication of my "Note" the magnificent collection of scientific papers* in which Prof. du Bois-Reymond has brought together his electrophysiological researches appeared. The work had not long been in my possession before I became much more strongly impressed than I had been before with the extent and completeness of the investigations to which he has devoted the last thirty-five years. My attention was particularly directed to the paper, No. XVII. of the series, "*Ueber das Gesetz des Muskelstromes mit besonderer Berücksichtigung des M. Gastrocnemius vom Frosch.*" In this very important research, with which, although it was originally published in 1863, I was, I regret to say, only acquainted at second hand, Du Bois-Reymond not only recognized the electromotive anomalies of the gastrocnemius, but explained them in the most elaborate manner as dependent on its peculiarities of structure.

I at once became aware of the mistake I had made, and recognized the necessity of correcting it; but determined to defer doing so until I was in a position to communicate further observations on the collateral question with which I was more particularly concerned. As, however, Prof. du Bois-Reymond, in a letter just received, has expressed his wish that the misrepresentation of his views, for which I have so unwillingly made myself responsible, should be corrected as soon as possible, I write you this letter in the hope that the Society may allow it to be printed in the 'Proceedings.' You will see that my communication relates, not to the facts recorded, but exclusively to the views expressed as to their supposed inconsistency with the "Law."

I may, in conclusion, add that any reader who may desire to become acquainted with Prof. du Bois-Reymond's explanation of the electromo-

* '*Gesammelte Abhandlungen zur allgemeinen Muskel- und Nervenphysik*,' von E. du Bois-Reymond, Bd. ii., Leipzig. 1877.

tive phenomena of the gastrocnemius muscle, as based on the researches I have just referred to, will find it succinctly given in an admirable little work just published by Prof. Rosenthal, in the "International Scientific Series" ('Allgemeine Physiologie der Muskel und Nerven'), pp. 195-197. He will thereby be able to satisfy himself that that explanation covers many of the facts to which I directed attention in my "Note."

I am, my dear Sir,

Yours faithfully,

J. B. SANDERSON.

Prof. Huxley, Sec. R.S.

VII. "Photographic Image of Stratified Discharges." A Letter to Prof. STOKES, Sec. R.S., by W. SPOTTISWOODE, M.A., Treas. R.S. Received June 2, 1877.

41 Grosvenor Place,
June 2, 1877.

MY DEAR STOKES,—I am sure that you will be interested to hear that Capt. Abney yesterday succeeded in photographing some of the phenomena which I had observed last year with a revolving mirror, and which are described in my paper "On Stratified Discharges, III." (Proceedings of the Royal Society, vol. xxv. p. 73). The success of the operation was due mainly to his skill, but partly also to the great brilliancy and long duration of the discharges from my large induction-coil, described in the 'Phil. Mag.' for February last.

The tube used on this occasion was a small hydrogen-tube of conical form, the effect of which, as seen in a revolving mirror, is represented in fig. 3 of the paper above quoted. The photographic image was obtained, not by the use of a mirror, but by moving the sensitive plate across the field of view during the continuance of the discharge. In this the first result, the position of the striæ, their proper motion, their grouping in pairs of different actinic power, and consequently of colour (a phenomenon well known in hydrogen tubes), are distinctly developed. Other features, of which I reserve the description, are also noticeable.

I hope on some future occasion to make a fuller communication upon the subject to the Royal Society; but in the mean time, if you think the matter of sufficient interest, I shall be much obliged by your offering this as a Preliminary Note.

Believe me,

Yours very sincerely,

W. SPOTTISWOODE.